

CLAIMS

1. A method for protecting multiplexed elements sharing a single electrical line, the method comprising:

5 accepting a first signal on an electrical line shared by a plurality of elements;

evaluating the first signal; and,

in response to evaluating the first signal, controllably interfacing a first element with the electrical line.

10
2. The method of claim 1 further comprising:

connecting the electrical line to an electrical device interface port.
- 15 3. The method of claim 1 wherein controllably interfacing the first element with the electrical line includes connecting the first element to the line.
4. The method of claim 1 wherein controllably

20 interfacing the first element with the electrical line includes disconnecting the first element from the line.
5. The method of claim 1 wherein evaluating the first signal includes comparing a first signal voltage level to a threshold

25 value; and,

wherein controllably interfacing the first element with the electrical line includes controllably interfacing the first element in

response to comparing the first signal voltage level to the threshold value

6. The method of claim 5 wherein controllably
5 interfacing the first element with the electrical line includes operating
a switch connecting the first element to the electrical line.

7. The method of claim 6 wherein comparing the
voltage level for the first signal to the threshold value includes
10 identifying a first signal voltage level less than the threshold value;
and,

wherein operating the switch connecting the first element
to the electrical line includes closing the switch to connect the first
element to the line in response to identifying the first signal voltage
15 level less than the threshold value.

8. The method of claim 7 further comprising:
selecting the threshold value less than a maximum
voltage level compatible with the first element.

20

9. The method of claim 6 wherein operating the switch
connecting the first element to the electrical line includes operating a
transistor connecting the first element to the electrical line.

25 10. The method of claim 9 wherein operating the
transistor connecting the first element to the electrical line includes

operating a transistor selected from the group including field effect transistors (FETs) and bipolar junction transistors (BJTs).

11. A method for multiplexing incompatible signals on
 5 a single electrical line, the method comprising:
 accepting a signal on a line shared by a first plurality of
 elements;
 comparing a first signal voltage level to a threshold value;
 and,
 10 in response to comparing the first signal voltage level,
 operating a second plurality of switches connecting a third plurality of
 respective elements, included in the first plurality of elements, to the
 electrical line.

12. A system for protecting multiplexed elements
 15 sharing a single electrical line, the system comprising:
 a plurality of elements connected to the electrical line;
 a first element, in the plurality of elements, with a port;
 a switch with a first port connected to the electrical line, a
 20 second port connected to the first element port, and a control input to
 accept control signals, the switch operating in response to accepting
 the control signals; and,
 a detection sub-system with an input connected to the
 electrical line, the detection sub-system input to detect a signal on the
 25 electrical line, and a control output connected to the switch control
 input, the control output to supply the control signals in response to
 the detection sub-system evaluating a detected signal.

13. The system of claim 12 further comprising:
a device external interface port connected to the electrical
line.

5

14. The system of claim 12 wherein the detection sub-
system control output supplies control signals in response to
comparing a detected signal voltage level to a compatibility threshold.

10

15. The system of claim 14 wherein the detection sub-
system control output supplies a connection control signal in
response to the detection sub-system detecting, for a signal on the
electrical line, a voltage level less than the compatibility threshold
value; and,

15

wherein the switch closes in response to accepting the
connection control signal.

16. The system of claim 15 wherein the compatibility
threshold value is less than a maximum voltage level compatible with
20 the first element.

17. The system of claim 14 wherein the switch is a
transistor with a first terminal connected to the first element first
port, a second terminal connected to the electrical line, and a third
25 terminal connected to the detection sub-system control output.

18. The system of claim 17 wherein the transistor is selected from the group including field effect transistors (FETs) and bipolar junction transistors (BJTs).

5 19. The system of claim 14 wherein the detection sub-system is a controller with an input connected to the electrical line and an output connected to the switch control input.

20. The system of claim 18 wherein the first element is
10 an amplifier with an input to accept an audio signal, a control input to accept an enable signal, a control output to supply a V- signal in response to accepting the enable signal, and an output to supply an amplified audio signal;

wherein the switch is an FET with a drain terminal
15 connected to the amplifier output, a source terminal connected to the electrical line, and a gate terminal; and,

wherein the detection sub-system includes:

a first resistor with a first port connected to the
electrical line and a second port connected to the FET gate
20 terminal;

a second resistor with a first port connected to
ground and a second port; and,

a BJT with a collector terminal connected to the
FET gate terminal, an emitter terminal connected to the
25 amplifier control output, and a base terminal connected to the second resistor second port.

21. In a wireless communications device, a system for protecting multiplexed elements sharing a single electrical line, the system comprising:

- 5 a plurality of elements connected to the electrical line;
- a first element, in the plurality of elements, with a port;
- an FET with a source terminal connected to the first element port, a drain terminal connected to the electrical line, and a gate terminal to accept a switch control signal, the FET operating in response to accepting the switch control signal; and,
- 10 a detection sub-system with an input connected to the electrical line, the detection sub-system to detect a voltage level for a signal on the electrical line, and a control output connected to the FET gate terminal, the control output to supply the switch control signal in response to the detection sub-system comparing a detected
- 15 voltage level to a maximum voltage level compatible with the first element.